

WHAT IS CLAIMED IS:

1. A V-belt continuously variable transmission comprising:

- an input shaft;

- an output shaft;

- a primary pulley that is connected to the input shaft and whose groove width changes in accordance with a supplied fluid pressure;

- a secondary pulley that is connected to the output shaft and whose groove width changes in accordance with a supplied fluid pressure;

- a V-belt that is wrapped around the primary pulley and the secondary pulley;

- and

- a controller functioning to:

 - when a speed ratio of the transmission is to be increased,

 - set the fluid pressure supplied to the primary pulley to fluid pressure necessary for ensuring a torque capacity of the V-belt and necessary for maintaining the speed ratio, and

 - set the fluid pressure supplied to the secondary pulley to an fluid pressure that is higher than the fluid pressure necessary for ensuring the torque capacity of the V-belt and necessary for maintaining the speed ratio, thereby attaining a target speed change speed.

2. A V-belt continuously variable transmission according to claim 1, wherein the controller further functions to:

- compute a pulley ratio maintenance thrust force, which is a thrust force necessary for maintaining the speed ratio, for each of the pulleys;

- compute a thrust force correction amount for achieving the target speed

change speed; and

when increasing the speed ratio, supply a fluid pressure to the primary pulley corresponding to the pulley ratio maintenance thrust force, and supply a fluid pressure to the secondary pulley corresponding to the sum of the pulley ratio maintenance thrust force and the thrust force correction amount.

3. A V-belt continuously variable transmission according to claim 2, wherein the controller further functions to:

convert the target speed change speed into a pulley stroke speed; and

compute the thrust force correction amount from the pulley stroke speed and the pulley ratio.

4. A V-belt continuously variable transmission according to claim 1, further comprising:

a first valve for regulating a fluid pressure from a fluid pressure pump to a line pressure;

a second valve for regulating a fluid pressure supplied to the primary pulley using the line pressure; and

a third valve for regulating a fluid pressure supplied to the secondary pulley using the line pressure, wherein:

the controller further functions to:

set the larger of the pressure supplied to the primary pulley and the pressure supplied to the secondary pulley as a target line pressure; and

control the first valve such that the line pressure becomes the target line pressure.

5. A speed change control method for a V-belt continuously variable transmission having: a primary pulley connected to an input shaft and whose groove width changes in accordance with a supplied fluid pressure; a secondary pulley connected to an output shaft and whose groove width changes in accordance with a supplied fluid pressure; and a V-belt that is wrapped around the primary pulley and the secondary pulley, the method comprising:

when a speed ratio of the transmission is to be increased,

setting the fluid pressure supplied to the primary pulley to an fluid pressure necessary for ensuring a torque capacity of the V-belt, and necessary for maintaining the speed ratio; and

setting the fluid pressure supplied to the secondary pulley to an fluid pressure higher than the fluid pressure necessary for ensuring the torque capacity of the V-belt and necessary for maintaining the speed ratio, to thereby achieve the target speed change speed.